

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants: LECOMTE et al

Serial No.:

Filed: September 22, 2001

For: Process For Pretreating A Natural Gas Containing  
Acid Gases

Group:

Examiner:

**PRELIMINARY AMENDMENT**

Assistant Commissioner  
for Patents  
Washington, D.C. 20231

September 24, 2001

Sir:

Prior to examination on the merits of this application and prior to calculation  
of the filing fee, please amend the above-identified application as follows:

**IN THE CLAIMS:**

Please amend the claims to read as follows:

3. (Amended) A process as claimed in claim 1, wherein in stage c), the gas phase obtained in stage b) is cooled by means of an expander.
5. (Amended) A process as claimed in claim 3, wherein:
  - e) at least one of the gas phases obtained in stage c) and in stage d) is compressed by using the energy recovered from the expander.
6. (Amended) A process as claimed in claim 1, wherein in stage c), the gas phase obtained in stage b) is cooled by means of a venturi neck, said liquid phase being

discharged in the vicinity of the venturi neck and said gas phase being recovered at the outlet of the divergent tube of the venturi neck.

8. (Amended) A process as claimed in claim 1, wherein at least one of the gas phases obtained in stage c) and in stage d) is used to cool at least one of the gas phases obtained in stage a) and in stage b).

9. (Amended) A process as claimed in claim 1, wherein:

f) at least part of the liquid phase obtained in stage b) is vaporized and said vaporized at least part of the liquid phase is fed into the distillation column so as to create an ascending vapour flow in said column.

10. (Amended) A process as claimed in claim 1, wherein part of the heat of the liquid phase obtained in stage b) is used to heat the gas phase obtained in stage a).

11. (Amended) A process as claimed in claim 1, wherein in stage a), the liquid phase and the gas phase are separated in a drum and at least part of the liquid phase obtained in stage b) is fed into said drum.

12. (Amended) A process as claimed in claim 1, wherein the operating conditions are as follows:

- Distillation column in stage b)  
 $T^{\circ}\text{C} = -20^{\circ}\text{C}$  to  $100^{\circ}\text{C}$ ,  
 $P > 1$  MPa abs.
- Pressure and cooling temperature in stage c)  
 $T^{\circ}\text{C} = -100^{\circ}\text{C}$  to  $+30^{\circ}\text{C}$ ,  
 $P > 1$  MPa,
- Temperature to which said natural gas is cooled in stage a)  
 $0$  to  $50^{\circ}\text{C}$ .

13. (Amended) A process as claimed in claim 1, wherein the natural gas under pressure has a partial hydrogen sulfide pressure of at least 0.5 MPa.

14. (Amended) A process as claimed in claim 1, wherein a distillation column having at least 3 theoretical stages is used.

15. (Amended) A process as claimed in claim 1, wherein in stage a), the natural gas is at a pressure ranging between 6.5 MPa and 12 MPa, and at a temperature above 15°C.

16. (Amended) A process as claimed in claim 1, wherein:  
g) the liquid phases obtained in stages a) and b) are fed into a well.


REMARKS

The foregoing amendments are respectfully requested prior to examination on the merits of this application. A marked up copy of the amended claims is attached.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 612.40667X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

  
Alan E. Schiavelli  
Registration No. 32,087

AES/jla  
(703) 312-6600

REWRITTEN MARKED UP COPY

3. (Amended) A process as claimed in ~~any one of claims 1 and 2~~ claim 1, wherein in stage c), the gas phase obtained in stage b) is cooled by means of an expander.
5. (Amended) A process as claimed in ~~any one of claims 3 and 4~~ claim 3, wherein:
- e) at least one of the gas phases obtained in stage c) and in stage d) is compressed by using the energy recovered from the expander.
6. (Amended) A process as claimed in ~~any one of claims 1 and 2~~ claim 1, wherein in stage c), the gas phase obtained in stage b) is cooled by means of a venturi neck, said liquid phase being discharged in the vicinity of the venturi neck and said gas phase being recovered at the outlet of the divergent tube of the venturi neck.
8. (Amended) A process as claimed in ~~any one of the previous claims~~ claim 1, wherein at least one of the gas phases obtained in stage c) and in stage d) is used to cool at least one of the gas phases obtained in stage a) and in stage b).
9. (Amended) A process as claimed in ~~any one of the previous claims~~ claim 1, wherein:
- f) at least part of the liquid phase obtained in stage b) is vaporized and said vaporized at least part of the liquid phase is fed into the distillation column so as to create an ascending vapour flow in said column.
10. (Amended) A process as claimed in ~~any one of the previous claims~~ claim 1, wherein part of the heat of the liquid phase obtained in stage b) is used to heat the gas phase obtained in stage a).
11. (Amended) A process as claimed in ~~any one of the previous claims~~ claim 1, wherein in stage a), the liquid phase and the gas phase are separated in a drum and at least part of the liquid phase obtained in stage b) is fed into said drum.

12. (Amended) A process as claimed in ~~any one of the previous claims~~ claim 1, wherein the operating conditions are as follows:

- Distillation column in stage b)  
 $T^{\circ}\text{C} = -20^{\circ}\text{C}$  to  $100^{\circ}\text{C}$ ,  
 $P > 1$  MPa abs.
- Pressure and cooling temperature in stage c)  
 $T^{\circ}\text{C} = -100^{\circ}\text{C}$  to  $+30^{\circ}\text{C}$ ,  
 $P > 1$  MPa,
- Temperature to which said natural gas is cooled in stage a)  
 $0$  to  $50^{\circ}\text{C}$ .

13. (Amended) A process as claimed in ~~any one of the previous claims~~ claim 1, wherein the natural gas under pressure has a partial hydrogen sulfide pressure of at least  $0.5$  MPa.

14. (Amended) A process as claimed in ~~any one of the previous claims~~ claim 1, wherein a distillation column having at least  $3$  theoretical stages is used.

15. (Amended) A process as claimed in ~~any one of the previous claims~~ claim 1, wherein in stage a), the natural gas is at a pressure ranging between  $6.5$  MPa and  $12$  MPa, and at a temperature above  $15^{\circ}\text{C}$ .

16. (Amended) A process as claimed in ~~any one of the previous claims~~ claim 1, wherein:

- g) the liquid phases obtained in stages a) and b) are fed into a well.